DOI:10.6660/TESFE.1996012 台灣昆蟲Formosan Entomol. 16: 107-115 (1996) 研究報告 Research report

Formosan Entomologist
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# The Genusn Mirax from Taiwan (Hymenoptera: Braconidae: Miracinae) 【Research report】

# 臺灣產奇脈繭蜂屬(膜翅目：小繭蜂科：奇脈繭蜂科)【研究報告】

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Received: Accepted: 1996/05/14 Available online: 1996/06/01

## Abstract

The genus Mirax: Haliday (Hymenoptera: Braconidae: Miracinae) is revised for Taiwan. Of the 3 comprised species, M. feretus sp. n.,, and M. taiwanicus sp. n. are new to science, and Mirax mogrus Papp is new to Taiwan. A key for the 3 Mirax species of Taiwan is given and 27 original figures are presented.

## 摘要

奇脈繭蜂屬（Mirax）隸膜翅目、小繭蜂科、奇脈繭蜂亞科（Miracinae），全世界已知之種類約有25種。本文首次記錄與描述臺灣產之3種奇脈繭蜂；其中2種為新種。文中並附性狀圖及臺灣產之分種檢索表。

**Key words:** Hymenoptera, Braconidae, Mirax, taxonomy, Taiwan.
**關鍵詞:** 膜翅目、小繭蜂科、奇脈繭蜂屬、分類、臺灣。

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中華昆蟲 16: 107-115(1996)
Chinese J. Entomol. 16: 107-115(1996)

# The Genus *Mirax* from Taiwan (Hymenoptera: Braconidae: Miracinae)

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## ABSTRACT

The genus *Mirax* Haliday (Hymenoptera: Braconidae: Miracinae) is revised for Taiwan. Of the 3 comprised species, *M. feretus* sp. n., and *M. taiwanicus* sp. n. are new to science, and *Mirax mogrus* Papp is new to Taiwan. A key for the 3 *Mirax* species of Taiwan is given and 27 original figures are presented.
**Key words:** Hymenoptera, Braconidae, *Mirax,* taxonomy, Taiwan.

## Introduction

The genus *Mirax* Haliday, 1833 is a small genus comprising 25 species in the world, including 2 species in the Oriental Region (Belokobylskij, 1993), and 5 species from the eastern Palaearctic Region (Papp, 1987; Belokobylskij, 1989; Maetô, 1995). In this paper, 3 *Mirax* species are reported from Taiwan, of which 2 species are new to the science and 1 species has been previously reported, but not from Taiwan.

In terminology we mainly follow Huber and Sharkey (1993), and Wahl and Sharkey (1993). In lists of material examined, the following abbreviations are used for the collectors: K.C. Chou (KCC), L.Y. Chou (LYC), S.P. Huang (SPH), K.S. Lin (KSL), S.C. Lin (SCL), T. Lin (TL), C.C. Pang (CCP), W.S. Tang (WST), W.H. Ting (WHT), and C.H. Yang (CHY). In the material examined only "in BP" (=in Museum Budapest) is indicated as the depository institution; where not indicated the depository is Department of Applied Zoology, Taiwan Agricultural Research Institute, Taichung, Taiwan.

## Key to the species of the genus *Mirax* from Taiwan

1. First flagellomere at most indistinctly longer than 2nd flagellomere (Fig. 5); temple in dorsal view somewhat receded (Fig. 14) ····· *mogrus* Papp
−. First flagellomere distinctly longer than 2nd flagellomere, i.e., 1.3-1.6 times (Fig. 6); temple in dorsal view rounded (Fig. 21) ····· 2
2. Propodeum distinctly carinated, medially with a transverse as well as longitudinal strong carinae, otherwise propodeum smooth and shiny (Fig. 27); eye in lateral view about 1/3 wider than temple (Fig. 25) · *taiwanicus* sp. n.
−. Propodeum without carinae and anteroposteriorly uneven to rugulose-rugose (Fig. 13); eye in lateral view (Fig. 11) just wider than temple ····· *feretus* sp. n.

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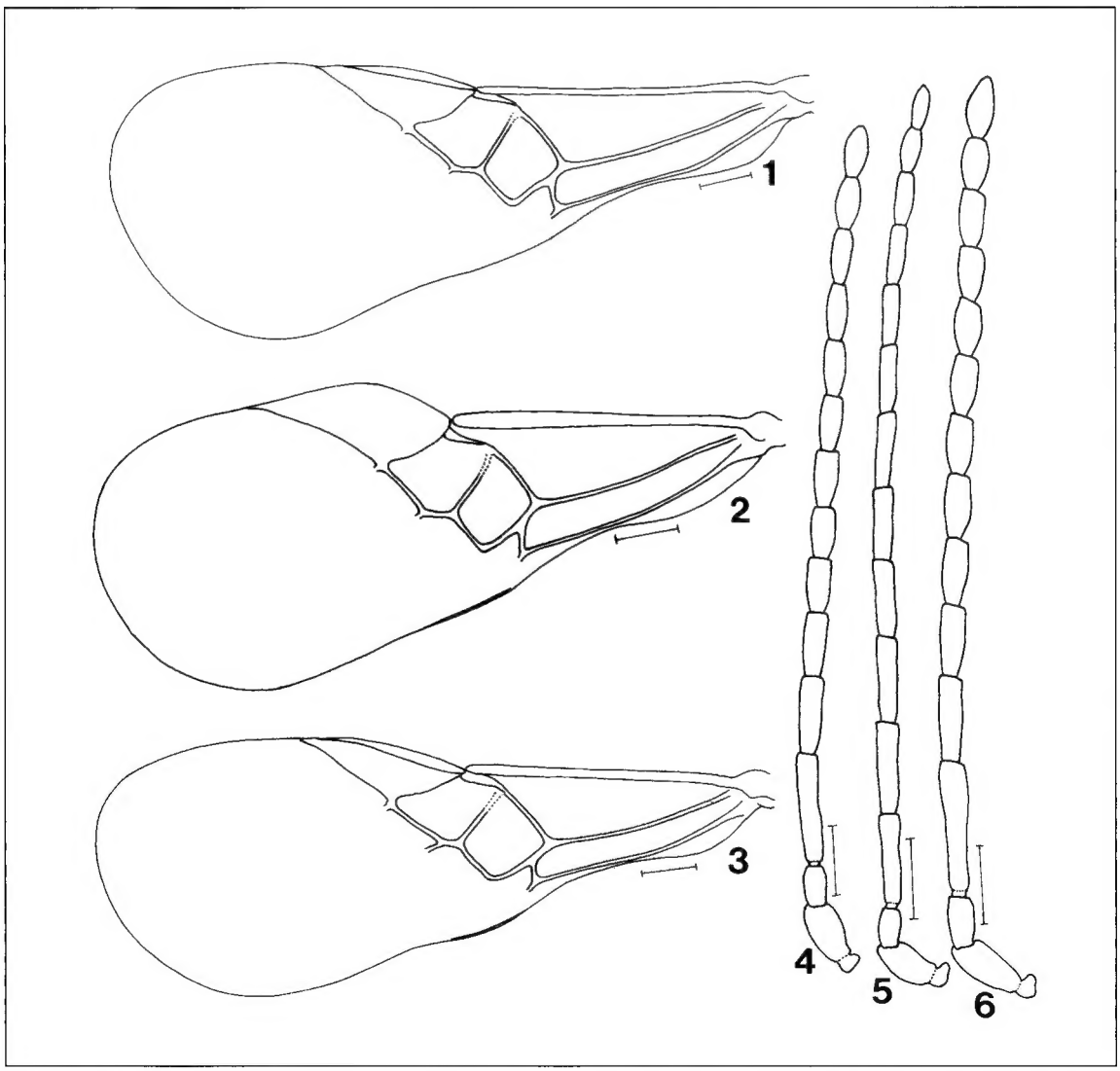
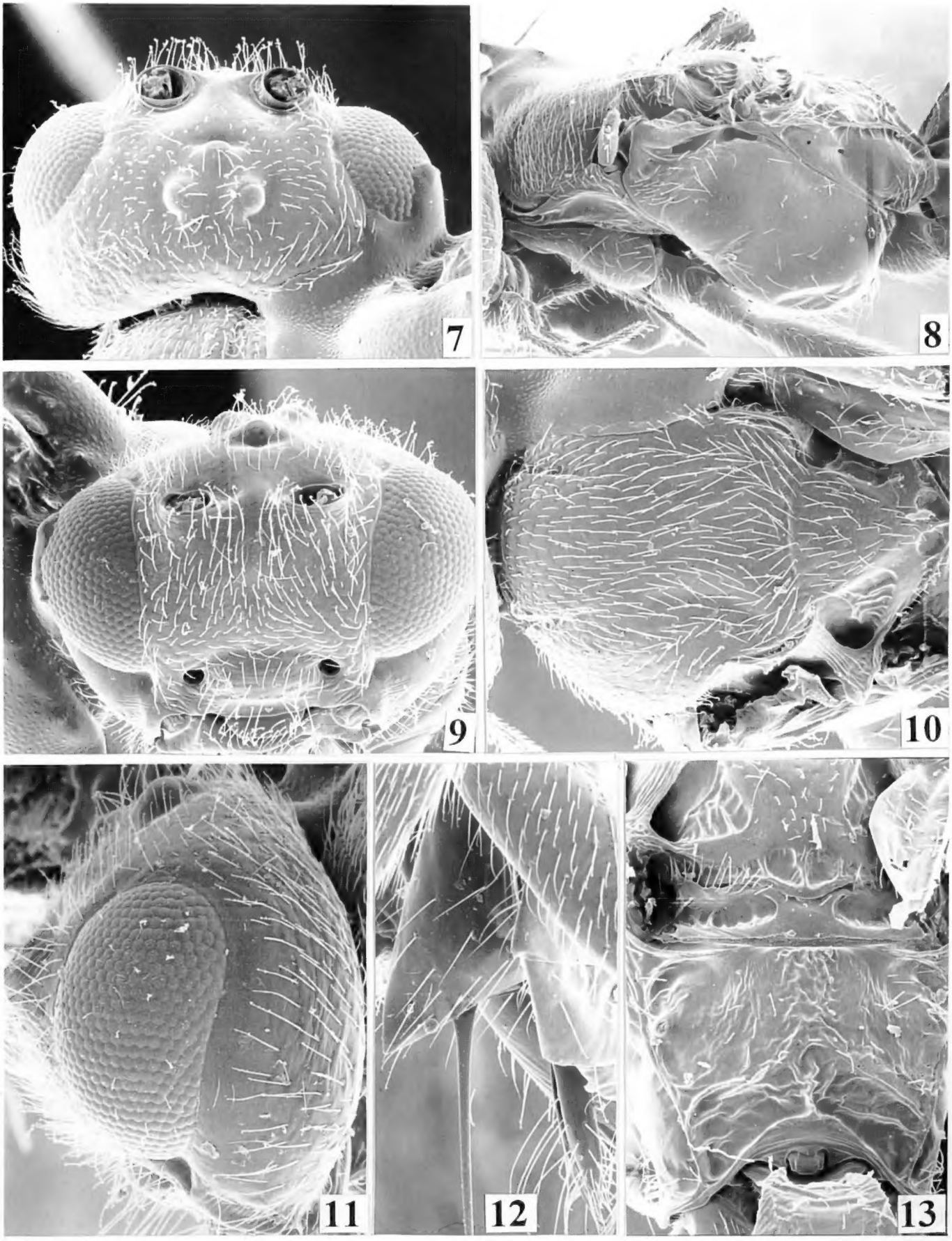
***Mirax feretus* sp. n. (Figs. 1, 4, 7-13)**

**Female:** Body 2.5 mm long. **Head** in dorsal view transverse (Fig. 7), 1.8 times as broad as long, eye 1.7 times as long as temple, latter rounded. Ocelli small and somewhat elliptical, OOL about 1/3 longer than POL. Eye in lateral view 1.7 times as high as wide, just wider than temple (Fig. 11). Face less transverse, 1.4 times as wide below as high medially, inner margin of eyes faintly converging ventrally (Fig. 9). Clypeus 1.7 times as wide below as high medially. Malar space as long as basal width of mandible. Head with fine, even, shallow, and rather disperse punctation, interspaces dull to subshiny and about as large as punctures. Antenna 14-segmented, about as long as body. First flagellomere 5.6 times as long




Figs. 1-6. *Mirax* spp. (♀) 1-3, forewings. 1, *M. feretus* sp. n.; 2, *M. mogrus* Papp; 3, *M. taiwanicus* sp. n. 4-6, Antennae. 4, *M. feretus* sp. n.; 5, *M. mogrus* Papp; 6, *M. taiwanicus* sp. n. (scale=0.2 mm)




Figs. 7-13. *Mirax feretus* sp. n. (♀) : 7, head in dorsal view; 8, mesosoma in lateral view; 9, head in frontal view; 10, mesonotum in dorsal view; 11, head in lateral view; 12, hypopygium in lateral view; 13, mesonotum and propodeum in dorsal view (7, 9, 10 at 150 x; 8 at 100 x; 11, 12 at 200 x; 13 at 170 x).

as broad apically and 1.3-1.4 times as long as 2nd flagellomere, lengths of further flagellomeres shortening relatively less and indistinctly attenuating so that penultimate flagellomere 3.2 times as long as broad

**Mesosoma:** Mesosoma in lateral view 1.4 times as long as high. Notauli absent on disc of mesoscutum, on its declivous part faintly present as a weak impression with somewhat rougher sculpture. Scutellar sulcus narrow, shallow and with fine crenulae. Propodeum anteroposteriorly uneven to rugulose-rugose, without transverse and longitudinal carinae (Fig. 13). Mesoscutum and scutellum with similar sculpture to that of head, dull to subshiny (Fig. 10), mesopleuron polished.

**Wing:** Forewing as long as body. Stigma (Fig. 1) 2.4-2.5 times as long as wide, issuing vein r-rs somewhat proximally from its middle; vein R1 stub-like; 2/Rs twice as long as 3/Rs and relatively more oblique; 1/M 1/3 shorter than 1+2/Cu, hence cell 1M not short; 1/Cu somewhat shorter than 1cu-a.

**Leg:** Hind femur 3.4-3.5 times as long as broad. Hind tibia and tarsus equal in length. Hind basitarsus as long as tarsomeres 2-4 and 1/2 as long as tarsomere 5.

**Metasoma:** Metasoma as long as mesosoma. Hypopygium in lateral view (Fig. 12) somewhat less truncate. Ovipositor sheath about 1/2 as long as hind basitarsus.

**Color:** Body bicolored. Head, tegula and terga 1-3 rusty brown, mesosoma black, legs yellowish brown. Scape and pedicel rusty brown, flagellum blackish brown, palpi yellowish brown. Wings faintly fumous, stigma and veins opaque, yellowish brown.

**Male:** Unknown.

**Material examined:** Holotype ♀: NANTOU: Meifeng 2,150 m, 19-21-IV-1983, KCC & SPH. Paratype: 1 ♀, same data as holotype (in BP, Hym. Typ. No. 7435).

**Distribution:** Taiwan.

**Host:** Unknown.

**Etymology:** The specific name "*feretus*" is a fantasy name.

**Remarks:** This species is easily distinguished from other Taiwan *Mirax* species by the propodeum without carinae and anteroposteriorly uneven to rugulose-rugose.

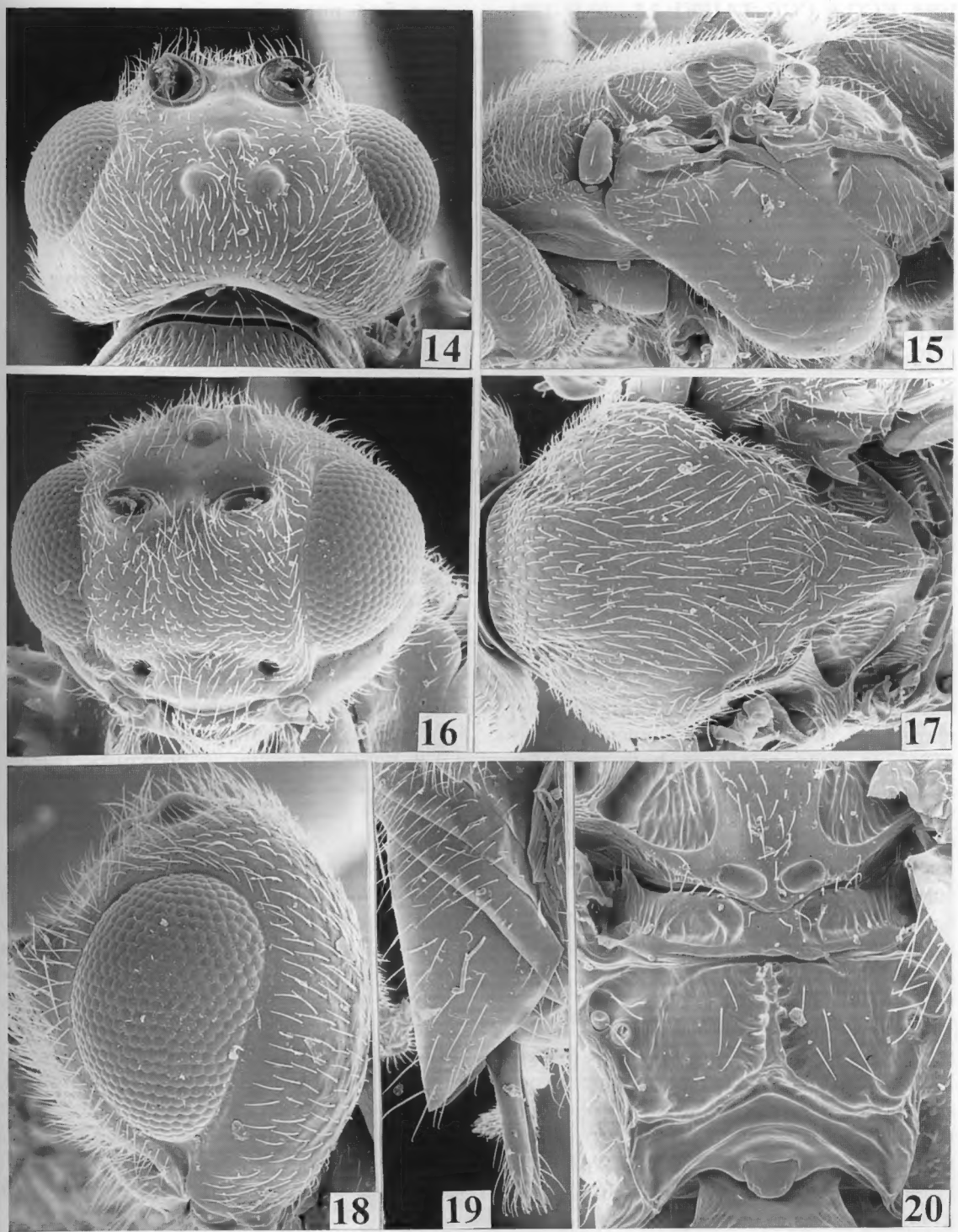
### *Mirax mogrus* Papp (Figs. 2, 5, 14-20)

*Mirax mogrus* Papp, 1987. Acta Zool. Hung. 33: 448. - Belokobylskij, 1989. Vestn. Zool. 4: 43. - Belokobylskij, 1993, Russian Entomol. J. 2: 55. - Maetô, 1995. Jpn. J. Ent. 63: 652.

**Female:** Body 1.9-2.3 mm long. Head in dorsal view (Fig. 14) 1.8-1.9 times as broad as long. First flagellomere at most 1.1-1.3 times as long as 2nd flagellomere, usually indistinctly longer (Fig. 5). Stigma 2.8-3.0 times as long as wide. 1/Rs+M 1/4 to 1/5 longer than 1/M. Ground color yellow or brownish yellow, less frequently mesosoma dorsally more or less with brownish suffusion to a variable extent, hind dorsal half of metasoma usually brownish.

**Male:** Similar to the female. First flagellomere usually as long as 2nd flagellomere, penultimate flagellomere 3.5-4.0 times as long as broad. Ground color of body yellow.

**Material examined:** HUALIEN: Fuli-TAITUNG: Tungho, 2♀, 9-11-XI-1982, KCC & SPH (1♀ in BP). KEELUNG: 1♀, 25-VII-1961, WHT. NANTOU: Chitou 1,150 m, 1♀, 13-X-1951, KSL; Sungkang 2,100 m, 1♀, 15-17-VIII-1984, KCC (in BP); Tungpu 1,200 m, 1♀1♂, 25-29-IX-1980, LYC & TL (in BP); 1♀2♂, 18-23-XI-1981, TL & WST (1♂ in BP); 2♀, 18-21-X-1982, KCC & SCL; 3♀1♂, 22-25-XI-1982, KCC & SPH (2♀ in BP); 1♀2♂, 13-16-XII-1982, KCC & CCP; 1♀1♂, 10-14-I-1983, KCC & SPH.; Wushe 1,150 m, 1♀, 6-11-V-1981, KSL & SCL, 1♀, 30-VIII-2-IV-1982, LYC & KCC. PINGTUNG: Mutantsun, 1♀, 14-III-




Figs. 14-20. *Mirax mogrus* Papp (♀) : 14, head in dorsal view; 15, mesosoma in lateral view; 16, head in frontal view; 17, mesonotum in dorsal view; 18, head in lateral view; 19, hypopygium in lateral view; 20, mesonotum and propodeum in dorsal view (14, 15, 17 at 130 x; 16, 19 at 170 x; 18, 20 at 220 x).

1984, KCC & CCP. TAIPEI: 1♂, 10-IV-1964 and 1♂, 31-V-1964, KSL; Yangmingshan (Tsaoshan), 20 km N Taipei City, 1♂, 19-V-1967, KSL. TAITUNG: Lanyu, 1♀1♂, 13-18-IV-1981, TL & SCL; Chihpen, 1♀, 17-18-II-1982, LYC & KCC. TAOYUAN: Paling 800 m, 1♀, 3-5-V-1983, KCC & CCP.

**Distribution:** Japan, Korea, Russia (Far East Maritime Territory), Taiwan (new record), Vietnam.

**Hosts:** *Dendrorycter marmaroides* Kumata, *Spulerina dissotoma* (Meyrick), and *S. parthenocissi* Kumata & Kuroko (Maetô, 1995).

### *Mirax taiwanicus* sp. n. (Figs. 3, 6, 21-27)

**Female:** Body 2.0-2.1 mm long. **Head** in dorsal view (Fig. 21) transverse, 1.9-2.0 times as broad as long, eye distinctly 1.8-2.0 times as long as temple, latter rounded. Ocelli small and round, OOL almost twice as long as POL. Eye in lateral view (Fig. 25) 1.7 times as high as wide, temple about 1/3 narrower than eye. Face 1.6 times as wide as high, inner margin of eyes parallel. Clypeus clearly twice as wide below as high medially. Malar space slightly shorter than basal width of mandible. Head smooth and shiny. Antenna 14-segmented, somewhat longer than body. First flagellomere 6.5 times as long as broad apically and 1.3-1.6 times as long as 2nd flagellomere (Fig. 6), further flagelomeres slightly thickening so that penultimate flagellomere 2.2-3.3 times as long as broad.

**Mesosoma:** Mesosoma in lateral view (Fig. 22) 1.4 times as long as high. Notauli absent. Scutellar sulcus narrow, shallow, and uncrenulated. Propodeum medially with a longitudinal carina and posteriorly with a strong transverse carina, along carinae with short rugae-rugulae, otherwise propodeum smooth and shiny (Fig. 27). Declivous part of mesoscutum densely rugulose, disc of mesoscutum with posteriorly somewhat weakening fine punctation, interspaces smooth and shiny; scutellum smooth and shiny; mesopleuron polished.

**Wing:** Forewing somewhat longer than body. Stigma (Fig. 3) 2.3-2.7 times as long as wide, issuing vein r-rs from its middle; vein R1 stub-like; 1/M as long as or just shorter than 1/Rs+M; 2/Rs twice as long as 2/M and relatively more oblique; 1/M 1/5 shorter than 1+2/Cu, hence cell 1M not short; 1/Cu as long as 1 cu-a.

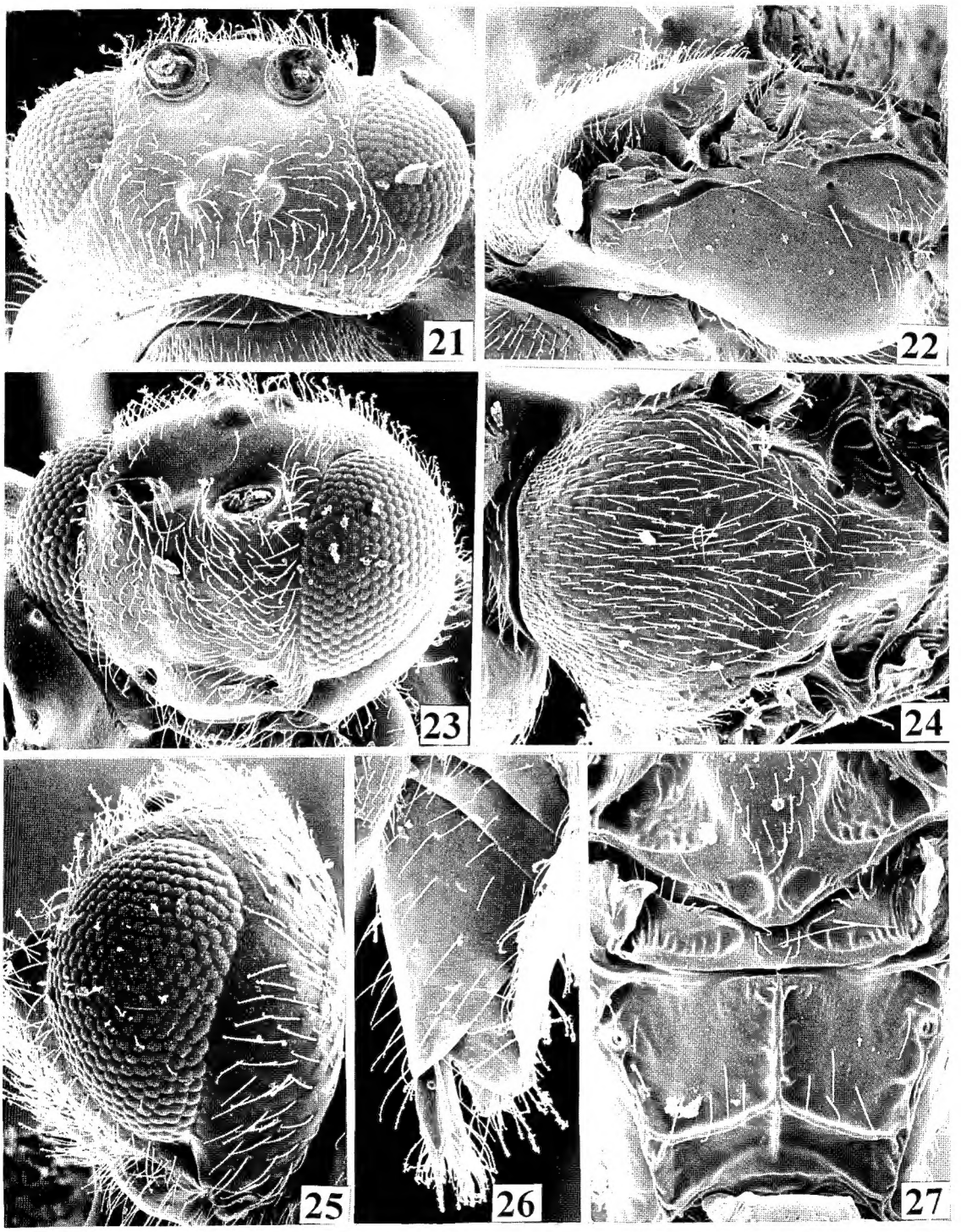
**Leg:** Hind femur 3.5-4.5 times as long as broad medially. Hind tibia and tarsus equal in length. Hind basitarsus as long as tarsomeres 2-5.

**Metasoma:** Metasoma as long as mesosoma. Hypopygium in lateral view truncated. Ovipositor sheath as long as hind basitarsus.

**Color:** Ground color of body brownish black. Face and temple suffused brownish. Head sometimes brownish yellow. Clypeus brown. Palpi yellow. Scape and pedicel yellow, flagellum either evenly dark brown or gradually darkening apically or flagellomere 1-2 yellow to dark brown. Tegula yellow. Legs yellow. Terga 1-2 yellow, tergum 3 brownish, further terga brown. Ovipositor sheath yellow, apically brown. Wings hyaline, stigma and veins opaque yellow.

**Male:** Similar to the female. Body 2.0-2.1 mm long. First flagellomere 1.2-1.4 times as long as 2nd flagellomere; penultimate flagellomere 3.3-3.6 times as long as broad. Hind femur 3.6-4.0 times as long as broad. Stigma about 2.5 times as long as wide.

**Material examined:** Holotype ♀: NANTOU: Meifeng 2,150 m, 22-26-VI-1983, KSL & SCL. Paratypes: HUALIEN: Tayuling 2,560 m, 1♀3♂, 6-9-IX-1983, LYC & KCC (1♂ in BP, 7661). NANTOU: Meifeng 2,150 m, 1♀, 26-VIII-1980, KSL & CHW; 1♂, 7-9-V-1981, KSL & SCL; 1♀, 24-26-VI-1981, KSL & WST (in BP, 7648); Sungkang 2,100 m, 3♀, X- & 1♀, XI-1984, KSL & KCC (1♀ in BP, 7660); Tsuifeng




Figs. 21-27. *Mirax taiwanicus* sp. n. (♀) : 21, head in dorsal view; 22, mesosoma in lateral view; 23, head in frontal view; 24, mesonotum in dorsal view; 25, head in lateral view; 26, hypopygium in lateral view; 27, mesonotum and propodeum in dorsal view (21, 23, 24 at 200 x; 22 at 150 x; 25, 27 at 250 x; 26 at 220 x).

2,300 m, 1♀, 23-V-1982, LYC; 1♀, VII-1984, KSL & KCC (1♀ in BP, 7659); Tungpu 1,200 m, 1♀, 18-23-XI-1981, TL & WST; 2♀, 22-25-XI-1982, KCC & SPH; 1♀, 13-16-XII-1982, KCC & CCP; 1♀, 10-14-I-1983, KCC & SPH; 1♀, 23-27-VII-1984, KCC & CHY (2♀ in BP, 7657, 7658). TAICHUNG: Anmashan 2,275 m, 1♀, 6-9-VII-1979, LYC.

**Distribution:** Taiwan.

**Host:** Unknown.

**Etymology:** The specific name "*taiwanicus*" refers to the location of the type-series.

Remarks: This species is very similar to *Mirax kumatai* Maetô, 1995, the distinctive features between the 2 species are disclosed in the subsequent key:

1. First flagellomere about 1.1 times, i.e., hardly longer than 2nd flagellomere (Fig, 7 in Maetô, 1995: 651); head in dorsal view 1.5-1.6 times as broad as long, eye 1.5-1.7 times as long as temple (Fig. 3 in Maetô, 1995: 650); hind femur less long, 3.5-3.8 times as long as broad; ground color of body yellow to dark yellow, antenna brown, meso-and metasoma dorsally brown to dark brown…… *M. kumatai* Maetô

—. First flagellomere 1.3-1.6 times, i.e., distinctly longer than 2nd flagellomere (Fig. 6); head in dorsal view 1.9-2.0 times as broad as long, eye 1.8-2.0 times as long as temple (Fig. 21); hind femur long, 3.5-4.5 times as long as broad; ground color of body brownish black, head sometimes brownish yellow …… *M. taiwanicus* sp. n.

## Acknowledgments

The authors wish to express their cordial thanks to Mr. Chen-yu Wong for the line drawings

## References

**Belokobylskij, S.A.** 1989. East-Palearctic braconid species of the genera *Dirrhope* and *Mirax* (Hymenoptera, Braconidae, Miracinae). Vestn. Zool. 4: 34-46 (in Russian with English summary).

**Belokobylskij, S.A.** 1993. New taxonomic data on the braconid fauna (Hymenoptera, Braconidae) of Vietnam. Russian Entomol. J. 2(2):37-67.

**Huber, J. T., and M. J. Sharkey.** 1993. Structure. pp. 18-59. *in:* Goulet, H., and J. T. Huber, eds. Hymenoptera of the World: An Identification Guide to Families. Agriculture Canada, Ottawa.

**Maetô, K.** 1995. The genus *Mirax* (Hymenoptera, Braconidae, Miracinae) from Japan. Jpn. J. Ent. 63(3): 649-656.

**Papp, J.** 1987. Braconidae (Hymenoptera) from Korea, IX. Acta Zool. Hung. 33(3-4): 435-456.

**Wahl, D. B., and M. J. Sharkey.** 1993. Superfamily Ichneumonoidea. pp.358-509. *in:* Goulet, H., and J.T. Huber, eds. Hymenoptera of the World: An Identification Guide to Families. Agriculture Canada, Ottawa.

***Received for publication January 23, 1996;***
***Revised manuscript accepted May 14, 1996.***

# 臺灣產奇脈繭蜂屬
# (膜翅目：小繭蜂科：奇脈繭蜂亞科)

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## 摘　要

奇脈繭蜂屬(*Mirax*)隸膜翅目、小繭蜂科、奇脈繭蜂亞科(Miracinae)，全世界已知之種類約有25種。本文首次記錄與描述臺灣產之3種奇脈繭蜂；其中2種為新種。文中並附性狀圖及臺灣產之分種檢索表。

**關鍵詞**：膜翅目、小繭蜂科、奇脈繭蜂屬、分類、臺灣。

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